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ABSTRACT

This module is one in a series of seven focused on skills vocational teachers need to develop and manage programs that are performance-based and fully individualized. Designed to allow for individualization of a teacher education program, these modules supplement those prepared by the National Center for Research in Vocational Education for professional development of vocational teachers. The objective of this module is to help develop skill in preparing valid performance objectives. Focuses are revising existing performance objectives or writing one's own and establishing the validity of both terminal and enabling performance objectives. Contents include three learning experiences based on three enabling objectives that provide background information, practice experiences, or a combination. Completion of these experiences should lead to achievement of the terminal objective in the fourth and final learning experience with teacher performance assessment form. Each learning experience includes a learning activity (activities) with information sheets, case studies, and self-checks with model answer (as feedback). Optional activities may also be provided. (YLB)

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X-2
PREPARE VALID PERFORMANCE OBJECTIVES
Revised 6-1-81

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CE 030 432

Professional Preparation Module

Vocational Teacher

FORWARD

This module is one in a series focused on the skills vocational teachers need to develop and manage programs that are performance-based and fully individualized. Modules in this series should be used to supplement those prepared by the National Center For Research in Vocational Education for the professional development of vocational teachers.

This series of modules was developed in direct response to Pennsylvania Vocational Education Program Compliance Standards which, among other things, demand that programs be performance-based to serve the occupational needs and interests of each enrolled student.

The need for developing a special series of modules was recognized by Dr. Carroll Curtis of the Bureau of Research and Evaluation Pennsylvania Department of Education and, through the financial support of his office, these modules were developed.

The modules were reviewed by Dr. Ruth Armstrong and Dr. Robert Elingler which led to changes in this edition of the series. Changes were also made on the bases of feedback received from certain or the more than 200 Vocational Teachers who used the modules during the 1980-81 academic year. The assistance of all who were involved in this effort is gratefully acknowledged.

Richard A. Adamsky
Project Director

INTRODUCTION

The most promising educational practice to emerge in recent years has been that of using performance objectives when planning instruction. In effect, teachers state, in very explicit terms, what it is they would like their students to be able to do, how well they would like them to do it and under what conditions they would like this done. It is not until this decision is made that they develop instructional strategies to bring about desired student behavior.

The practice of using performance objectives has been warmly embraced by vocational educators since such provides a safeguard against teachers invalidating their programs through paying too little attention to the reality found in the business-industrial community served. Through the use of Terminal Performance Objectives, vocational education programs become reality-based.

Vocational educators have also come to recognize the value of preparing Enabling Performance Objectives. Such objectives provide a safeguard against teachers getting "off track" when designing meaningful instruction to help students develop the occupational skills they will need. In effect, such objectives lead to cost-effective vocational education.

This module is designed to help you achieve competence at preparing valid performance objectives. You will learn how to revise existing performance objectives or write your own. You will also learn how to establish the validity of both Terminal and Enabling Performance Objectives.

ABOUT THIS MODULE

Objectives:

Terminal Objective: While working in an actual school situation, prepare valid performance objectives. Your performance will be assessed by your Resource Person, using the Teacher Performance Assessment Form, pp. 47-49, (Learning Experience IV).

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the rational for preparing objectives and the characteristics of properly prepared performance objectives (Learning Experience I).
2. After completing the required reading, demonstrate knowledge of the process used to validate performance objectives (Learning Experience II).
3. Given access to a vocational teacher from your occupational specialty, evaluate this teacher's competence to prepare valid performance objectives.

Resources:

A list of the outside resources which supplement those contained within the module follows. Check with your Resource Person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your Resource Person may also be contacted if you have any difficulty with directions, or in assessing your progress at any time.

LEARNING EXPERIENCE I

(Optional)

A Resource Person and/or peers with whom you can meet and discuss or apply the material in the information sheet.

LEARNING EXPERIENCE II

(None)

LEARNING EXPERIENCE III

(Required)

An experienced vocational teacher from your occupational specialty willing to meet with you, have you review his/her performance objectives and discuss how they were validated.

LEARNING EXPERIENCE IV

(Required)

An actual school situation in which you can prepare valid performance objectives

A Resource Person to assess your competency in preparing valid performance objectives.

LEARNING EXPERIENCE I

OVERVIEW

Enabling Objective: After completing the required reading, demonstrate knowledge of the rationale for preparing objectives and the characteristics of properly prepared performance objectives.

Activity: You will be reading the information sheet, preparing objectives, pp. 6-16.

Optional Activity: You may wish to meet with your Resource Person and/or peers to further discuss the information in the reading.

Activity: You will be demonstrating knowledge of the rationale for preparing objectives and the characteristics or properly stated performance objectives by completing the Self-Check, pp. 17-20.

Feedback: You will be evaluating your competency by comparing your completed Self-Check with the Model Answers, pp. 21-23.

Activity: ⬆ For information on the rationale for preparing objectives and the characteristics of properly prepared performance objectives, read the following information sheet.

PREPARING OBJECTIVES

Far too many teachers start their instructional planning by asking themselves "what shall I do?" The fact is that it is not really important to answer that question until the teacher has first decided what it is that students are to achieve. As Seneca stated some 2,000 years ago, "When a man does not know what harbor he is heading for, no wind is the right wind."

Vocational education seeks to prepare competent workers, and each vocational teacher must work toward that end. But, how does a vocational teacher know when students have become competent; and, more importantly, how do students know? The need to unambiguously state what constitutes competence, the measure of student achievement, is critical to instructional planning.

A competent worker is one who can perform assigned tasks under the conditions which prevail on the job and according to the standards which currently apply. A worker is not fully competent if he/she is able to perform required tasks but unable to perform them under prevailing conditions or according to prevailing standards. This being the case, instructional planning in vocational education must begin with the teacher stating in no uncertain terms exactly what it is that students must achieve to have success when placed on the job.

The Performance Objective

In recent years, it has become the practice to use performance objectives when describing what would constitute appropriate student achievement. For

this reason, each vocational teacher must be competent at preparing performance objectives.

A performance objective is a statement that is action oriented describing what students must be able to do after instruction. Furthermore, it describes the conditions under which they must perform and the standards that will be used to judge the adequacy of their performance. Stated more simply, a performance objective is a three-part statement of students' required post-instructional behavior; (1) conditions, (2) performance, and (3) standards.

Performance objectives can be prepared at several levels. But, in all cases, their adequacy is judged by their specificity and whether or not all three essential parts are present. Teachers can prepare objectives to describe appropriate student performance upon exit from a total program, the course, a unit of a course, or a lesson. Since the use of modularized instruction is becoming more prevalent in vocational education, teachers may find it necessary to prepare objectives at no more than two (2) levels; (1) program exit objectives (terminal) and (2) lesson exit objectives (enabling).

As you began this module, you were introduced to the teaching skill (prepare valid performance objectives) to be learned. Then, you were informed of the terminal objective that you were required to meet (program exit objective) and the enabling objectives (lesson exit objectives) designed to provide you with the knowledge and practice felt essential to your developing this teaching skill. The adequacy of the enabling objectives is found in their relevance to the terminal objective. Likewise, the adequacy of any activity suggested in this module is found in its ability to help you fulfill the intent of the enabling objectives. Therefore, those who prepare modules must begin by first establishing the terminal objective and then the enabling objectives. These objectives establish the basis upon which helpful learning experiences are designed.

The Terminal Performance Objective (TPO)

The vocational teacher having a valid listing of the tasks to be included within the scope of his/her program is ready to start preparing terminal performance objectives; one for each task included. Those teachers who have not validated their programs could prepare TPO's, but it would be very likely that one or more of them would be invalid.

The task statement is the "heart" of a TPO in that it describes something that a student entering an occupation must be able to do, e.g., replace muffler, give backrub, or adjust valves. As can be seen, each task statement begins with an action word (verb) and names the object of that action. The task, therefore, describes observable student post-instructional behavior.

When preparing a TPO, the teacher must also identify the conditions under which students will be expected to perform the task when placed in the employment situation. Obviously, employment conditions will vary somewhat within the business-industrial community. For instance, the tools and equipment used by workers can differ by brand name. Similarly, the merchandise sold or the socio-economic background of the clients to be served may differ. These differences become important to the teacher when it is impossible to match work-place conditions within the school environment. If a match is not possible, the teacher must either describe school conditions or maintain work-place conditions and wait until students enter a cooperative experience where conditions for performance are found. Obviously, the teacher who decides to employ the use of school conditions has no assurance that students will be able to perform when placed on the job. In effect, the terminal performance objective would have to be considered partially invalid. Following, are several examples of conditions which might be considered valid:

CONDITION STATEMENTS

Category	Examples
Provided (tools, etc.)	. Having access to all shop resources --- . Using a volt meter ---
Denied (supervision, etc.)	. Without assistance --- . Without the use of powertools ---
Environment	. While in a clinical setting --- . In an actual employment situation ---
Time	. Upon exit from the Welding Program --- . After completing the cooperative experience ---
Information	. Given verbal directions --- . Without the use of any references ---

The final part of a TPO that a teacher must prepare is a description of the standards that will be used to determine appropriate student performance. Here again the teacher must consider the employment situation and realize that there will be some variability among employers as to what is considered an appropriate level of performance upon job entry. For this reason, the teacher should set standards high enough to ensure the employability of <u>all</u> students at <u>most</u> business-industrial concerns. Under no circumstances should standards be lowered to accommodate students with learning difficulties. Such students should either be given more time to develop performance ability or counseled out of attempting to learn certain skills. Such would be far more cost-effective than preparing students unable to perform well enough to obtain employment. It would be to students' advantage to have fewer skills that are fully developed than to have many underdeveloped skills.

Below are examples of some seemingly valid performance standards:

STANDARDS STATEMENTS

Category	Examples
Accuracy	. Within ± .005 inch on all decimal dimensions --- . Within ± 1° of top dead center ---
Speed	. At no less than 50 words per minute --- . At the average rate of one per hour for 3 hours ---
Referenced*	. According to manufacturers' specifications --- . As described in Cole County Plumbing Standards (Revised, 1979) ---
Excellence	. So that the completed seams will not split when subjected to the two pieces of material being sharply jerked,--- . So that the weld will withstand 100 lbs. sheer force ---

In summary, a well-prepared terminal performance objective will be an explicit and valid statement of what a student must be able to do on the job, how well the student must be able to perform, and the conditions under which performance must occur. Following are several examples of terminal performance objectives:

. Having access to all shop resources, replace the front shocks on an automobile according to the manufacturer's specifications.

. While in a clinical setting, take a patient's temperature following the procedures recommended in the Nursing Performance Assessment Handbook.

*Note: When using Referenced Standards, the teacher must determine if they are open to more than one interpretation. If so, they must be modified so as to reduce ambiguity to a minimum.

- Without assistance, ball and burlap an ornamental so that the ball will not separate when removed from the earth.
- Upon completing a cooperative experience, install subflooring at the average rate of one sheet (4'x8') per 5 minutes.
- Given verbal instructions, style men's hair so that they express satisfaction with the work.

Enabling Performance Objectives (EPO)

While it is the purpose of the TPO to describe student performance at the completion of a vocational program, the purpose of the EPO is to describe student interim performance. Stated differently, to describe their performance after participation in one or another learning activity designed to help them move closer to fulfilling the intent of a TPO. If a student can fulfill the intent of an EPO and has not come any closer to meeting the intent of a TPO, then the objective has no enabling qualities and must be considered invalid. Far too often, teachers prepare enabling objectives that have little enabling power.

In general, teachers should prepare no less than two (2) enabling objectives for each terminal performance objective in their programs. The first should center on the information students need in order to perform the task in question. For example, students must learn the steps involved in performing a task, the safety procedures to follow, and basic related information from such fields as science and math. The second enabling objective should center on the practice needed to be able to perform the task in question. For example, students might be required to apply the information gained through meeting the first objective to hypothetical situations or in simulated settings.

As you progress through this module, you will see that each enabling objective is related to the terminal objective and each, if met, brings you closer

to fulfilling the intent of the terminal objective. For instance, you are now involved in a learning activity designed to provide you with needed information to help you fulfill the intent of the first enabling objective. When you have accomplished this, you will move into activities designed to help you meet the second enabling objective.

An enabling objective is similar to a TPO in that it must be an explicit statement of student post-instructional behavior including the conditions under which the student must perform and the standards that will apply. The following are examples of what might be appropriate condition and standards statements:

CONDITION STATEMENTS

Category	Examples
Provided	. With the assistance of a peer student --- . Given a list of ---
Denied	. Without referring to a textbook --- . From memory alone ---
Environment	. With a peer student in the role of a client --- . Using only the tools available in the shop ---
Time	. After completion of the required activities --- . Upon reading three (3) resumes ---
Information	. Given information about a hypothetical client --- . When provided with a list of resistor values ---

STANDARDS STATEMENTS

Category	Examples
Accuracy	. Without any mistakes --- . As per Model Answers ---
Speed	. Within ½ hour of maximum rated time --- . Within 5% of the manufacturers recommended time rating ---
Referenced	. According to the procedures outlined in the information sheet provided --- . As compared to answers found in the text ---
Excellence	. Without any tooling marks --- . So that all lines are totally opaque ---

In summary, a well-prepared enabling performance objective must be explicit and have all essential parts. In addition, each must move learners toward being able to fulfill the intent of a targeted terminal performance objective. Unfortunately, not all enabling objectives have very much enabling ability. Take for example the following enabling objectives:

1. After participating in a lecture/discussion on The Backrub, name no less than ten (10) of the fifteen (15) steps in giving a backrub.
2. Without the use of any references, define all fifteen (15) words associated with adjusting brakes.
3. Provided with two (2) lists - one of terms and another of definitions, match each term with an appropriate definition with 85% accuracy.

On the surface, it would appear that all three (3) enabling objectives are good. Each is explicit, each stipulates student behavior (name, define, match), and each describes the conditions and standard involved. However, the behavior required doesn't require students to do more than recall information; a very low

level of learning. Furthermore, two of the objectives set standards that suggest that the information to be recalled is not essential to worker performance. For instance, if only ten (10) of fifteen (15) steps must be recalled, then five (5) steps need not be recalled. Since recalling any ten (10) steps would meet the standard, one must conclude that none of the steps is essential to meeting the TPO. If knowing the steps were essential to performance then all should be known.

In preparing Enabling Objectives, teachers must make every effort to require student behavior that has good potential to move students toward TPO's. Valid EPOs should not require low level student behavior nor behavior that has little relationship to what is essential to success on the job.

The following are two (2) sets of sequenced enabling performance objectives that have enabing power:

I.1. After participating in a lecture/discussion on the procedures followed when giving a patient a backrub, discuss in writing the value of a backrub to patient's physical and mental health and the critical steps involved in giving a good backrub. Your responses must include all the points found in the model provided.

I.2. Under the supervision of a head nurse and with the assistance of a peer student, give a patient a backrub. Your performance will be assessed by the head nurse using the Performance Assessment Check List, and you must be rated at or above the satisfactory level on each listed item.

II.1. After viewing the slide-tape presentation entitled "Brake Adjustment", describe verbally the important steps followed to adjust power brakes and the critical safety safeguards. Your description must include all the major points listed on the Self-Check sheet which accompanies the slide-tape presentation.

II.2. In a shop situation, when assisted by your instructor, adjust the power brakes on an automobile. There is no time limit, but the brakes must meet manufacturer's operating specifications.

You should have noticed that each set of objectives moved from information comprehension to the application of that information in a practice situation. Upon closer examination, you will notice that each suggests the type of learn-

ing activity felt to be appropriate. Such sequenced objectives should, when followed by an appropriate TPO, result in students having competence at the two skills involved; Give a Backrub and Adjust Power Brakes.

Related Performance Objectives

There is a wide range of skills that students will need that relate to getting and holding a job but that are not revealed through an analysis of an occupation. For instance, how to make application for a job, prepare a resume, and file income tax returns. In addition, there are appropriate attitudes that should be internalized if students are to succeed in obtaining and holding a job. For instance, valuing punctuality, valuing the rights of fellow workers, and valuing craftsmanship.

Some teachers take the position that such skills and attitudes are outside their responsibilities to teach; and others that take the position that they are at least as important as the occupational tasks to be learned within the program. Those teachers who do not insure that students develop certain attitudes toward work and certain job-related skills will discover that their students may have difficulty in the employment situation. For this reason, it is suggested that vocational teachers attend to these student needs or see to it that someone else does.

The teacher who seeks to have students learn job-related skills will find it necessary to develop a terminal and enabling performance objectives for each skill involved. The procedure followed is no different than that previously described.

Teachers who seek to help students internalize certain desirable attitudes will find that it is difficult to develop performance objectives to guide them. For one thing, attitudes are internal to a person and it is difficult to de-

scribe an incident of human behavior that reflects a person's attitude. However, vocational teachers should attempt to help students develop appropriate attitudes through developing what might be called expressive objectives; objectives that state, in teachers' opinions, what behavior expresses appropriate student attitude. Take for example the following:

- Throughout the school year of 180 days, maintain punctuality for no less than 170 days.
- When confronted with opinions that differ from personal opinion, express an acceptance of others' opinions by either remaining silent or acknowledging the right of others to have different opinions.
- After making work specification errors, correct the errors without being told to do so.

As should be obvious, the above objectives are less explicit than performance objectives would normally be. The behavior stated is subject to argument and the standards are arbitrary. The objectives simply express the writer's opinions but such could help teachers focus on helping students internalize appropriate worker attitudes.

Optional Activity: ⇨ You may wish to arrange to meet with your Resource Person and/or peers who are also taking this module. At this meeting you could (1) discuss what you have heard or read about performance objectives, (2) attempt to prepare sample Terminal or Enabling Objectives for your service area, or (3) review existing objectives for the purpose of assessing their utility.

Activity: The following items check your comprehension of the material in the information sheet, Preparing Objectives, pp. 6-16.

Self-Check

I. Following is a list of statements about Performance Objectives. Place a check (✓) by each that is true and explain in writing why the statements you did not check are false.

_____1. A Terminal Performance Objective must describe the conditions and standards found to prevail in a vocational laboratory.

_____2. Both Terminal and Enabling Performance Objectives should be explicit and contain three essential parts.

_____3. Both Terminal and Enabling Performance Objectives describe post-instructional student performance.

_____4. An Enabling Performance Objective should be prepared for each Learning Experience the vocational teacher developes.

_____5. The standards for Terminal Performance Objectives must be set at a level that most students are insured employability in all local business-industrial concerns.

_____6. A Terminal Performance Objective must have enabling power or be considered invalid.

_____7. It is possible to prepare well written enabling objectives with almost no utility.

_____8. Teachers should only consider preparing Terminal Performance Objectives for the occupational tasks to be included within the scope of their programs.

_____9. Performance objectives can be prepared to describe desired student attitude.

II. You have been asked by your vocational administrator to attend a new vocational teacher orientation session to discuss with those teachers the rationale for preparing performance objectives. Outline briefly some of the major points you would make at this meeting.

III. Following are some statements (the term "statements" is used in that all parts of well-stated performance objective may not be presented). Place a check (✓) before each statement that is a performance objective. For those not checked, rewrite the statement as a Performance Objective.

_____1. Without the aid of references, define all terms found in the Glossary of The Plumbers Handbook (1975).

_____2. Adjust spark plugs to within ± .003 of the manufacturer's specifications.

_____3. Learn to add decimal numbers.

_____4. Describe in writing the proper procedures in grinding valves.

_____5. Without any help, but under the supervision of a foreman, install doublehung windows.

IV. For the following Terminal Performance Objective, prepare (1) an enabling objective that focuses on needed information and (2) another that would focus on practice.

Given a "Federal Income Tax Forms" booklet and your W-2 form, prepare an individual Tax Return (1040A) without error.

Feedback: Compare your written responses on the Self-Check with the Model Answers given below. For Parts I and III, you should have checked the same statements as those checked in the Model Response. In all parts your written responses need not exactly duplicate the Model Responses; however, you should have covered the same major points or closely match the response provided.

MODEL ANSWERS

I.

_____ 1. A Terminal Performance Objective must describe the conditions and standards that prevail in the business-industrial community. It is only when these conditions and standards can be matched in a vocational laboratory that describing such as they exist in the laboratory would be valid.

__✓__ 2.

__✓__ 3.

_____ 4. Actually the opposite is true. Teachers must first prepare performance objectives after which learning activities can be prepared.

_____ 5. Standards should be set so that all students become employable in most local business-industrial concerns. To do less is to insure failure of some vocational students.

_____ 6. Although satisfying a Terminal Performance Objective moves a person toward employability, the term "enabling power" is associated with enabling objectives. Such objectives may be very well written but have no "power" to move learners toward meeting a terminal objective, thus, they are invalid.

✓ 7.

8. This statement would be true if your reasoning considered skills needed by students outside of occupational tasks. Since their are numerous skills and attitudes that students would need that would not be revealed in an occupational analysis, the statement was considered false.

✓ 9.

II.

Answers to the situation described would vary, however, you should have covered the following points:

1. Performance objectives provide targets when planning for instruction. The teacher not aware of where he or she is heading is likely to end up elsewhere.
2. Students should know where they are heading and the roads they should take. The Terminal Performance Objectives tell them where they are heading and the enabling objectives, the roads they will travel.
3. Explicit objectives include condition/standard statements which have the advantage of making it obvious to all when objectives have been met. In the case of terminal objectives, they describe the employment world for what it is.

III.

✓ 1.

2. Without supervision, adjust spark plugs to within ± .003 of the manufacturer's specifications.

3. Given a variety of linear measurements in decimal form, add these numbers without error.

_____4. After viewing the slide-tape presentation, "Grinding Valves", describe in writing all steps involved and the essential safety factors to be considered in grinding values.

_____5. Without any help but under the supervision of a foreman, install doublehung windows at the average rate of one per two-hour period.

IV. The following have enabling power and are explicit. Yours should have the same characteristics.

Information: After participation in a lecture/discussion, discuss in writing the most common errors made when completing the 1040A Form and the procedures followed to overcome such error potential. Responses must make the same points as the Model Answer provided.

Practice: Given a "Federal Income Tax Forms" booklet and two W-2 forms, prepare individual tax returns (1040A) for each with no more than one error on both returns.

LEVEL OF PERFORMANCE: For Parts I and III, your checked items should exactly duplicate the Model responses. For all parts, your written responses should have covered the same major points or closely matched the response provided. If you missed some major points or have questions about points you made, review the material in the information sheet, Preparing Objectives, pp. 6-16, or check with your Resource Person if necessary.

LEARNING EXPERIENCE II

OVERVIEW

Enabling Objective: After completing the required reading, demonstrate knowledge of the process used to validate performance objectives.

Activity: You will be reading the information sheet, Validating Objectives, pp. 25-30.

Activity: You will be reading a case study of a teacher having Terminal Performance Objective validity Problems, pp. 31-32, and offering the teacher advice in writing.

Feedback: You will be evaluating your competency by comparing your written response to the Model Critique, pp. 34-35.

Activity: You will be reading a case study of a teacher having enabling performance objective validity problems, pp. 36-37, and offering the teacher advice in writing.

Feedback: You will be evaluating your competency by comparing your written response to the Model Critique, pp. 39-40.

Activity: For information on the process used to validate Performance Objectives, read the following information sheet.

VALIDATING OBJECTIVES

In Learning Experience I, you learned the importance of performance objectives. You also were made aware of the need to establish the validity of objectives. Objectives having no validity do not have educational value. In fact, such objectives can have the effect of giving vocational education a bad image within the communities served. There can be no greater harm done a community than to graduate vocational students unable to function appropriately in the jobs for which they were prepared. There can be no greater disservice to students than to have them meet objectives that have no enabling power or objectives that do not reflect the employment situation.

The Validation Process

As you previously learned, a Terminal Performance Objective states, in no uncertain terms, the behavior expected of a student (a task) along with the conditions and standards that apply. For it to have validity, each part of the objective must describe current business-industrial practices. In addition, you learned that an Enabling Performance Objective must also be explicit and contain all parts associated with a terminal objective. For an Enabling Performance Objective to be valid, it must move learners toward their being able to meet the intent of the Terminal Performance Objective.

The Terminal Performance Objective

The vocational teacher who has established the validity of the tasks and duties within the scope of his/her vocational program is well on the way to

developing valid Terminal Performance Ojectives. Through establishing the validity of occupational tasks, the vocational teacher has established the "heart" of each objective; the desired student behaviors. Teachers who have not validated the tasks to be included in their programs would be well advised to do so prior to engaging in preparing Terminal Performance Objectives since it is very likely that some of their objectives would be unrelated to the occupations they teach.

The vocational teacher with a validated task listing should prepare a Terminal Performance Objective for each task adding to the task statement what, in his or her opinion, are the conditions under which an employee (job entry) would be expected to perform the task and the standards likely to apply. Once this has been accomplished for each task, the teacher will need the help of incumbent workers and supervisors to determine whether the objectives truly represent appropriate student terminal behavior.

It is suggested, that the teacher work with the Occupational Advisory Committee to gain the cooperation that will be needed to validate the objectives. Committee members should be made aware of the intent of the validation process and informed of the need for help from incumbents from the business-industrial community. With help, the teacher should be able to constitute a review team of from five to ten workers and supervisors representing several concerns within the community served.

Once constituted, the review team should meet as a group for as long as it takes (one or more meetings) to examine each Terminal Performance Objective. The teacher should chair each meeting and record the suggestions made by members of the review team. Since the tasks were previously established valid, the review team is only to react to the conditions and standards statements. The vocational teacher should inform the team to react in terms of job entry

performance and that the conditions and standards are expected to vary across companies. The team should be told that the review is not to establish group consenses but rather to determine the variability that exists.

After each objective has been reviewed and the range of response to each recorded, the review team's work is done, and the teacher begins the rewriting process. The basic principle followed when rewriting objectives is that the conditions and standards included must assure that all students who meet the objectives would be able to function competently in most of the companies in which they might find employment. In effect, the teacher attempts to strike a balance between over and under preparation and to keep in mind the need to help each student become employable.

Once the rewriting process is completed, the teacher should meet with members of the Occupational Advisory Committee to share with them the revised objectives. The teacher should ask the Advisory Committee for a written endorsement that the objectives do in fact represent the needs of the business-industrial community.

Although it is not part of the validation process, it is necessary to make it clear at this point that one or more of the Terminal Performance Objectives that are established valid, may not be possible for students to meet given school resources and current operating practices. For instance, certain conditions may be impossible to create in the school environment. When this situation is found, it may be necessary to establish cooperative education experiences for students. Similarly, there may be instances where valid standards could not be demanded within a school environment. Here again, it may be necessary to arrange for the students to have cooperative experiences. Under no circumstances would it be desirable to alter conditions or standards thus rendering the objective invalid. The alternative to this would be to bring

the student as far as possible toward competence within school constraints and to record the actual conditions and standards that had applied. Such would acknowledge that the Terminal Performance Objective was not met but that progress toward that end was made. In so doing, the vocational teacher has maintained the credibility of the program. Students (and the business-industrial community) would have no illusions as to their competence upon program exit. Also, school administration, realizing the effect of certain constraints on the program, have the option to provide for cooperative experiences or alter the learning environment to more closely match those of the business-industrial community.

The Enabling Objective

There are some terminal objectives which some students will be able to meet prior to engaging in any teacher designed learning activities. This phenomonon results from students having developed skills prior to program entry. For this reason, teachers must take care in drawing conclusions about the validity of the enabling objectives they develop. A valid enabling performance objective would have enabling power only to a student without previously developed skill at the task being learned. Obviously, the enabling power of a performance objective could not be established through testing with skilled workers. However, it is equally obvious, that skilled workers should have no difficulty meeting enabling performance objectives that are valid.

It is important, at this point, to make a distinction between vocational training and vocational education. There are those who make no distinction between these two terms, but a distinction must be made before further discussing the process used to validate enabling objectives. If teachers take the

position that vocational students should learn only what is needed to perform (how to), then the teacher has revealed a commitment to vocational training. In contrast, teachers who take the position that vocational students should know why skills are needed and also know the basic science and mathematical principles related to performance reveal a commitment to vocational education. Neither position is wrong in that there are situations when the teacher would be expected to function as a trainer and others when the teacher is expected to function as an educator. The situation should dictate the teacher's behavior not the teacher's personal preference.

The reason for contrasting training and education is to establish the fact that there must be a perfect match between enabling objectives and a terminal objective when training is the teacher's purpose but that such will not be the case when the purpose is education. For example, a person able to meet a terminal performance objective upon entry into a program may not be able to meet an enabling objective that requires him or her to demonstrate knowledge beyond that associated with knowing how to perform. If the teacher, in such a situation, seeks to train this student, then the objective has no enabling power. In contrast, if the teacher's purpose is to go beyond training, it is likely that the objective would have utility and some enabling power; for educational purposes, the objective is valid.

A word of caution is essential, however. Teachers should not require students to demonstrate knowledge of information that is unrelated to their having success in the world of work. Far too many teachers, in the name of education, require students to learn useless information. This results in reducing the cost-effectiveness of a vocational program and could result in frustrating students.

In validating enabling objectives, the teacher should take the position that students lacking the skill focused upon, after meeting the enabling objectives, must be able to meet the terminal objective. In effect, the teacher need only select a few students that cannot meet the terminal or enabling objectives, have them participate in required learning experiences, meet enabling objectives, and then determine if they can meet Terminal Performance Objectives. If they can do so, the enabling objectives are valid. If not, the enabling objectives would have to be rewritten and the validation process again followed.

Activity: Read the following Case Study describing a problem faced by a vocational teacher. Assume you are the Curriculum Specialist sent to help this teacher, explain in writing what might be done to solve the problem.

CASE STUDY I

Bob Burns just got the word, they (school administration) were very concerned about his program. According to them, all the information they had gathered suggested a very great need for carpenters but that few of Bob's students were successful in obtaining employment in this occupation. Further, few of those who did get employed lasted long on the job. According to the administration, Bob's program lacked validity.

Bob knew that his students had not faired well in the employment market, but this he had always attributed to the poor students that entered his program each year. As he used to tell his fellow teachers, "You can't get blood out of a rock!" The comment about program validity was not true. For one thing, Bob thought, I had my program validated five years ago - the tasks are definitely those associated with entry level carpentry. For another, I work as a carpenter each summer, I know that these tasks are valid.

As Bob was thinking over the situation, Mary Murphy, the school Curriculum Specialist entered his shop. Before Bob could say a word, Mary indicated that she was aware of his problem and that she had been sent by the Administration to assist him in straightening out the problem. Bob knew Mary was a sharp gal but made it clear to her that, given his students, little could be done to solve the problem.

With this, Mary asked Bob if she could look over his Terminal Performance Objectives. After a few minutes of leafing through them she asked Bob when he

had prepared them and had he involved anyone from the business-industrial community. Bob really didn't see the relevance of the question but answered by saying that he had prepared them right after his program was validated, five years ago and that he had not involved anyone else in the writing process since people from business-industry do not have the skills needed to write Terminal Performance Objectives.

Critique Bob's problem, in writing.

Feedback: Compare your written analysis of what might be done to help the vocational teacher with the Model analysis given below. Your response need not exactly duplicate the model response; however, you should have covered the same major points.

MODEL CRITIQUE

There is much to suggest that Bob Burns is a conscientious teacher who has taken steps to have a valid program. However, Bob has not gone far enough. In addition, Bob has arrived at two false conclusions: one, that poor students shouldn't be required to perform under the same conditions and to the same standards as good students, the other that, since members of the business-industrial community cannot write performance objectives, they should not be depended upon to help establish the validity of Terminal Performance Objectives.

Since Bob is a conscientious teacher "under the gun" to do something to alleviate a problem, he can be expected to be very attentive to advice from his Curriculum Specialist. Bob should be advised by her to work with his Advisory Committee and to pull together a group of incumbent workers and supervisors to review his Terminal Performance Objectives. He should be advised to have them help establish the range of conditions and standards that exist for entry level carpenters and informed as to how to use this information to establish Terminal Performance Objectives that insure each of his student's employability.

Bob should also be advised not to alter his objectives once they have been established valid; that both poor and good students should be expected to meet the same conditions and standards. Student differences, he should be told,

simply result in either fewer terminal performance objectives being met by poorer students or their taking longer to meet enabling and terminal performance objectives.

Finally, Bob should be advised to have his validated objectives reviewed and endorsed by his Occupational Advisory Committee. Once this is done, the school administration can be made aware that certain objectives, though valid, cannot be met by students due to school environmental conditions. To meet such objectives, students will need cooperative education experiences or the environment adjusted.

LEVEL OF PERFORMANCE: Your completed critique should have covered the same major points as the Model response. If you missed some points or have questions about any additional points you make, review the material in the information sheet, Validating Objectives, pp. 25-30, or check with your Resource Person if necessary.

Activity: Read the following Case Study describing a problem faced by a vocational teacher. Assume you are the teacher's best friend and want to help him resolve the problem. Explain in writing what advice you could offer to help your friend.

CASE STUDY II

Billy Jones, one of Mr. Walton's better students, had caused such a fuss in class that morning that he had to be sent to the office to calm him down. As Mr. Walton headed to the office to speak with Bob Dikon, the Assistant Principal for Discipline, he couldn't believe that, after ten years of teaching in the same school without a serious problem that he had found it necessary to send a student to the office, and especially Billy Jones, a good, hard-working student.

As he approached Bob's office, Mr. Walton could see that Billy was still with Mr. Dikon, but Bob indicated that he should come in and have a seat. It was obvious that Billy was not going to mince his words just because his teacher had entered the room.

Mr. Walton couldn't believe some of the things that Billy had to say. One, that his course was "Mickey Mouse" with students required to learn things that had no relationship to the skills that are needed for employment as auto-mechanics (Mr. Walton's area). Another, if students didn't have the opportunity to learn outside of class by practicing on their own automobiles, none of them would ever be able to meet any of the terminal objectives in the program.

Bob Dikon could see that it had been a mistake to ask Mr. Walton into this conference so he halted the discussion and asked Billy to wait in the outer office while he discussed the situation with Mr. Walton. Billy agreed and left Bob and Mr. Walton alone.

Alone now, Bob Dikon asked Mr. Walton what had occurred to get Billy so "riled-up". Walton explained that he wasn't sure, but it may have been Billy's inability to meet Terminal Performance Objectives recently. In the past, Billy had had no trouble meeting terminal objectives after meeting associated enabling objectives but, for whatever reason, things had changed. "According to Billy," Bob said, "he is not learning what is needed to meet the terminal objectives he has been attempting recently." "In fact," Bob went on, "Billy claims that, had he not been working in a local automobile agency part-time, he would have had trouble meeting any of your Terminal Performance Objectives." "You know, Mr. Walton, that Billy lost his job in the agency two months ago; and it is his claim that his problems started at that point."

Critique Mr. Walton's problem, in writing.

Feedback: Compare your written advice to this teacher with the Model Critique given below. Your response need not exactly duplicate the Model Critique; however, you should have covered the same major points.

MODEL CRITIQUE

The evidence seems to suggest that Mr. Walton is using invalid enabling objectives in his vocational program. What is somewhat surprising, however, is that this problem took so long to surface. Perhaps it did not surface because his students, having sufficient interest in automobiles, had "out of school" learning experiences that supplemented those required in school. Therefore, they could meet Mr. Walton's enabling objectives and also the terminal objectives.

The Billy Jones incident should be sufficient reason to at least question the validity of Mr. Walton's enabling objectives and, for this reason, he should be advised to test their validity. He should obtain a group of between five and ten students unable to meet each terminal objective and have each meet the enabling objectives to determine if it is then possible to meet the terminal objective involved. Given the fact that many automechanic students seemed to be having relevant out of school learning experiences, Mr. Walton must try to use students not involved in out of school work on automobiles.

Mr. Walton should also examine each of his enabling objectives in terms of their enabling power. Billy Jones' remark about his enabling objectives being "Mickey Mouse" would seem to indicate that the objectives were addressing content not particularly relevant to the performance of automechanic tasks. Assuming that Mr. Walton seeks to "educate" his students, Billy Jones' remark may be unfounded but such a check would help resolve this question.

LEVEL OF PERFORMANCE: Your completed critique should have covered the same major points as the model response. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Validating Objectives, pp. 25-30, or check with your Resource Person if necessary.

LEARNING EXPERIENCE III

OVERVIEW

Enabling Objective: Given access to a vocational teacher from your occupational specialty, evaluate this teacher's competence to prepare valid performance objectives.

Activity: You will be meeting with an experienced vocational teacher to review the teacher's performance objectives and discuss the process used to validate them.

Activity: You will be evaluating the teacher's competence to prepare valid performance objectives using the Teacher Performance Checklist, pp. 43-44, and writing a report which makes recommendations for improvement.

Feedback: Your competency on evaluating the teacher's ability to prepare valid performance objectives will be evaluated by your Resource Person, using the Teacher Performance Checklist, pp. 43-44.

Activity:

Arrange with your Resource Person to visit with an experienced teacher in your occupational specialty for the purpose of reviewing that teacher's performance objectives and discussing the process followed to establish their validity.

Call this teacher prior to the visit to be certain that it is clearly understood what the visit's purpose is. If the teacher refuses to visit with you or it is not possible to schedule the visit with a teacher in your occupational specialty, attempt to schedule a visit with an experienced teacher from a related occupational specialty.

Activity:

As you visit with the experienced teacher, do not take notes or make negative comments but rather try to keep in mind the items on the Teacher Performance Checklist, pp. 43-44, and record your findings after you have left the teacher's presence.

After you have completed your visit and recorded your findings, prepare a brief report describing what you feel were the teacher's strengths and weaknesses in the area of preparing valid performance objectives. Then prepare a series of recommendations for improving this teacher's ability to prepare valid performance objectives.

TEACHER PERFORMANCE CHECKLIST

NAME_____

DATE_____

RESOURCE PERSON/STUDENT_____

Directions: Place an X in the NO, PARTIAL, or FULL box to indicate how well the teacher performed. If because of special circumstances, a component was not applicable to the particular situation, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
THE OBJECTIVES						
1. All objectives were explicit in that they stated:						
a. The performance required						
b. The conditions under which performance was required						
c. The standards to be used to judge appropriate performance.						
2. All Terminal Ojbectives were realistic in that they:						
a. defined performance needed upon job entry.						
b. stated conditions expected to prevail on the job.						
c. stated standards expected to prevail on the job.						

	LEVEL OF PERFORMANCE					
	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
3. All Enabling Objectives:						
a. were associated with specific Terminal Performance Ojbectives . . .						
b. were sequenced to move learners from knowledge acquisition to practices.						
c. had enabling power						
4. Some Terminal Performance Objectives focused on job related skills (e.g., prepare resume)						
5. Some Terminal Performance Objectives focused on student attitude development (e.g., punctuality).						
OBJECTIVE VALIDITY						
6. When validating Terminal Performance Objectives, the teacher:						
a. involved the Occupational Advisory Committee.						
b. involved incumbent workers and supervisors from more than one business-industrial concern. . . .						
c. set conditions and standards such that all students could be employable in most business-industrial concerns						
7. When validating Enabling Performance Objectives, the teacher:						
a. involved several students that were found to have no ability to meet either the Terminal or Enabling Objectives						
b. considered the enabling power of each objective						

Feedback:

After you have evaluated the teacher's ability to prepare valid performance objectives and develop recommendations for improving the teachers ability, arrange to have your Resource Person evaluate your work and discuss with you any areas of weakness.

LEARNING EXPERIENCE IV

FINAL EXPERIENCE

Terminal Objective:

While working in an actual school situation, prepare valid performance objectives.

Activity:

At a time when you are developing a new vocational program or at a time when you are involved in revising an existing program, prepare valid performance objectives. This will include:

- Writing both Terminal and Enabling Performance Objectives that are explicit containing the desired student performance as well as conditions and standards.
- Validating the Terminal Performance Objectives through the assistance of an Occupational Advisory Committee.
- Validating the Enabling Performance Objectives using students.

  Note: In order to complete this activity you will need a validated listing of the tasks included within the scope of your program.

  Note: As you complete each of the above activities, document your actions (in writing, on tape, through a log) for assessment purposes.

- Arrange to have your Resource Person review your completed performance objectives and other documentation.

Feedback:

Your total competency will be reviewed by your Resource Person, using the Teacher Performance Assessment Form, pp. 47-49.

Based on the criteria specified in this assessment instrument, your Resource Person will determine whether you are competent to prepare valid performance objectives.

TEACHER PERFORMANCE ASSESSMENT FORM

NAME _____

DATE _____

RESOURCE PERSON _____

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place ar X in the N/A box.

	LEVEL OF PERFORMANCE					
	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
THE OBJECTIVES						
1. All objectives were explicit in that they stated:						
a. The performance required						
b. The conditions under which performance was required						
c. The standards to be used to judge appropriate performance.						
2. All Terminal Ojbectives were realistic in that they:						
a. defined performance needed upon job entry.						
b. stated conditions expected to prevail on the job.						
c. stated standards expected to prevail on the job.						

	LEVEL OF PERFORMANCE					
	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
3. All Enabling Objectives:						
a. were associated with specific Terminal Performance Ojbectives . . .						
b. were sequenced to move learners from knowledge acquisition to practices.						
c. had enabling power						
4. Some Terminal Performance Objectives focused on job related skills (e.g., prepare resume)						
5. Some Terminal Performance Objectives focused on student attitude development (e.g., punctuality).						
OBJECTIVE VALIDITY						
6. When validating Terminal Performance Objectives, the teacher:						
a. involved the Occupational Advisory Committee.						
b. involved incumbent workers and supervisors from more than one business-industrial concern. . . .						
c. set conditions and standards such that all students could be employable in most business-industrial concerns						
7. When validating Enabling Performance Objectives, the teacher:						
a. involved several students that were found to have no ability to meet either the Terminal or Enabling Objectives						
b. considered the enabling power of each objective						

LEVEL OF PERFORMANCE: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and Resource Person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

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ABOUT USING MODULES IN THIS SERIES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should enable you to achieve the terminal objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual school situation when you are an intern, a student teacher, or an in-service teacher.

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills which you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the Introduction (2) the Objectives listed on p. 3, (3) the Overviews preceding each learning experience, and (4) the Final Experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- that you do not have the competencies indicated, and should complete the entire module
- that you are competent in one or more of the enabling objectives leading to the final learning experience, and thus can omit experience(s)
- that you are already competent in this area, and ready to complete the final learning experience in order to "test out"
- that the module is inappropriate to your needs at this time

When you are ready to take the final learning experience and have access to an actual school situation, make the necessary arrangements with your resource person and arrange (1) to repeat the experience, or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped; (2) repeating activities; (3) reading supplementary resources or completing additional activities suggested by the resource person; (4) designing your own learning experience; or (5) completing some other activity suggested by you or your resource person.

TITLES OF MODULES IN THE "X" SERIES

X-1 Validate An Occupational Analysis

X-2 Prepare Valid Performance Objectives

X-3 Develop A Module For Individualized Instruction

X-4 Arrange For The Improvement Of Vocational Facilities For Individualized Instruction

X-5 Establish An Ends Oriented Grading System

X-6 Provide Students With Individualized Assistance

TITLE OF CHANGE AGENT MODULE

Assist Vocational Education Personnel Move Toward Full Adoption of Performance-Based Vocational Education